National Defense Industrial Association

Strategies for Supportability and Interoperability Conference

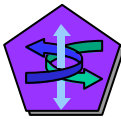**Dallas, Texas**

23 October 2001

Dr. V. Garber

Director for Interoperability

**Office of the Under Secretary of Defense**

(Acquisition, Technology and Logistics)

Interoperability:
Where are we, where are we going?

- **Overview/Status**
- **Director Interoperability Program**
- **Key Initiatives**
  - **Precision Engagement**
  - **Shared Tactical Ground Picture**
  - **Combat ID**
- **From Legacy to Interoperable BM/C3I**
  - **Family of Interoperable Operational Pictures (FIOP)**
  - **Joint Distributed Engineering Plant (JDEP)**
- **Conclusion**
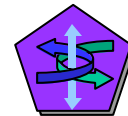
WHAT IS INTEROPERABILITY ?

"We will connect Information systems and weapons in new ways"
President George Bush
New York Times, 25 March 2001
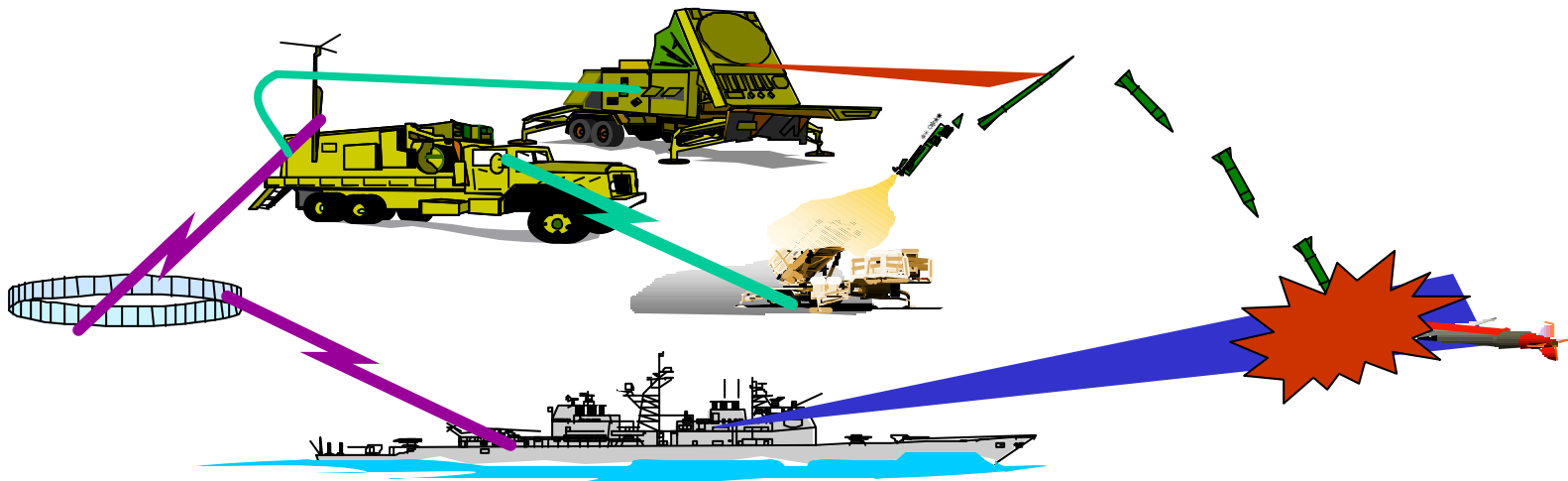
"The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together."

(JCS Pub 1)

Focus is on Effective Joint and Combined Operations
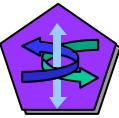
Status

- **Policies - Basically in place**
  - JV2020, DOD 5000, CJCSI 3170/6212, DODD 4630.5, DODI 4630.8

- **Process - Evolving**
  - KPP's, IER's, DAES Reporting, C4I Support Plans,T&E Master Plan, Certification

- **Architectures - Evolving**
  - JTA, JOA, JSA, GIG . . .

- **Systems of Systems Implementation - Evolving**

- **Overarching Interoperability Initiatives**
  - **FIOP, JDEP, JI&I - Evolving**
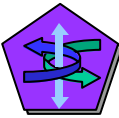
Directorate of Interoperability Program

- **Deputy, Systems Interoperability**
  - Family of Interoperable Operational Pictures (FIOP)
  - Combat Identification (CID)
  - Time Sensitive Targeting (TST)
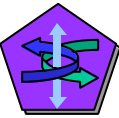 - Single Integrated Air Picture (SIAP)

- **Deputy, Systems Engineering**
  - Weapons Systems Assessments & Support
  - Transition of Mil Standards
  - NDIA Systems Engineering Committee

- **Deputy, Systems Architecture**
  - Systems Architecture
  - OMG Outreach
  - Shared Tactical Ground Picture (STGP)

- Joint Distributed Engineering Plant (JDEP)

- Coalition Warfare Initiatives

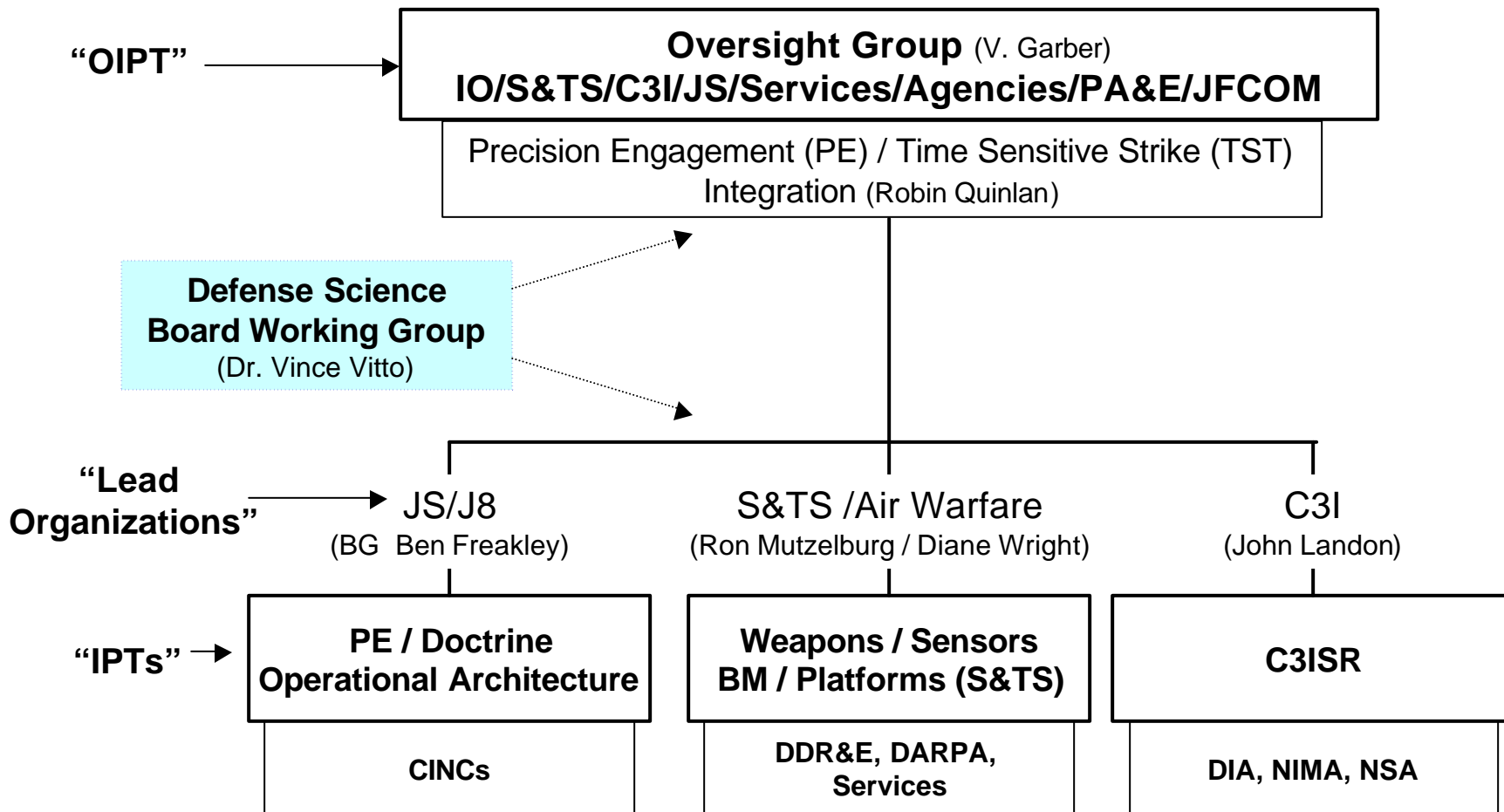# Precision Engagement / Time Sensitive Target Integration

- Build on work and recommendations of the Defense Science Board (DSB)

- Continue the ongoing work by the AT&L led Time Sensitive Targeting (TST) group

- Feed into the overall Precision Engagement effort

- Develop a plan of actions and milestones for Precision Targeting, to include TST

- Complete this task by April 2002

Integration Concept

"OIPT" →

Oversight Group (V. Garber)
IO/S&TS/C3I/JS/Services/Agencies/PA&E/JFCOM

Precision Engagement (PE) / Time Sensitive Strike (TST)
Integration (Robin Quinlan)

**Defense Science
Board Working Group**
(Dr. Vince Vitto)

**"Lead
Organizations"** →

JS/J8
(BG Ben Freakley)

S&TS /Air Warfare
(Ron Mutzelburg / Diane Wright)

C3I
(John Landon)

"IPTs" →

PE / Doctrine Operational Architecture	**Weapons / Sensors BM / Platforms (S&TS)**	**C3ISR**
CINCs	**DDR&E, DARPA, Services**	**DIA, NIMA, NSA**

Plan of Action

- **Provide, as a product, a Plan of Action with milestones**

- **Address Funding/Schedule/Actions**
  - **Policies/Process**
  - **Doctrine, Organization, Training, Materiel, Leadership, Personnel (DOTMLP)**
  - **Requirements**
  - **Architectures**
  - **Acquisition Programs**
  - **Technology Programs**
  - **Experimentation**

- **Time Phased Approach**
  - **Immediate**
 - **FY03**
  - **FY04 POM**

"Five Power" ➡ NATO

Shared Tactical Ground Picture Available to All Levels of Command

- **Requirement Tied to Agreed Concepts and Doctrine**

- **Ability to Link Selected Sensors and Shooters in Shared Information Grid - Real-Time Targeting Information**

- **Selected C2 Information (primarily Situational Awareness) Available on Shared Information Grid**

- **Selected Sensors and Shooters Linked Functionally**

- **C2 Information Exchange as Appropriate to Level of Command**

> Notes: Sensor Selection to include baseline of current capabilities with evolution toward most critical additions based on performance and other trade-offs to include consideration of common/interoperable data sets.
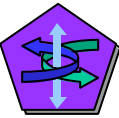
Combat Identification (CID)

- **A top concern for US/Joint/Coalition Interoperability**
  - **Many lives have been lost due to failures in CID**

- **Leading an effort with C3I and Joint Staff to focus on the ground combat element of CID - where we are weakest**

- **"Joint CID Ground Study" proposal to lay out Army, Navy, Marine Corps, Air Force systems over time, in a synchronized fashion, to deliver a capability to our troops**

OSD/AT&L Champion to Implement this initiative

Secretary Donald Rumsfeld's question:

Deadline for Interoperability of Legacy Command and Control?

C2 LEGACY DEFINITION

All Battle Management Command and Control systems and supporting communications that are either deployed or in development, but not impacted by newly approved interoperability requirements, policies, regulations, and directives.
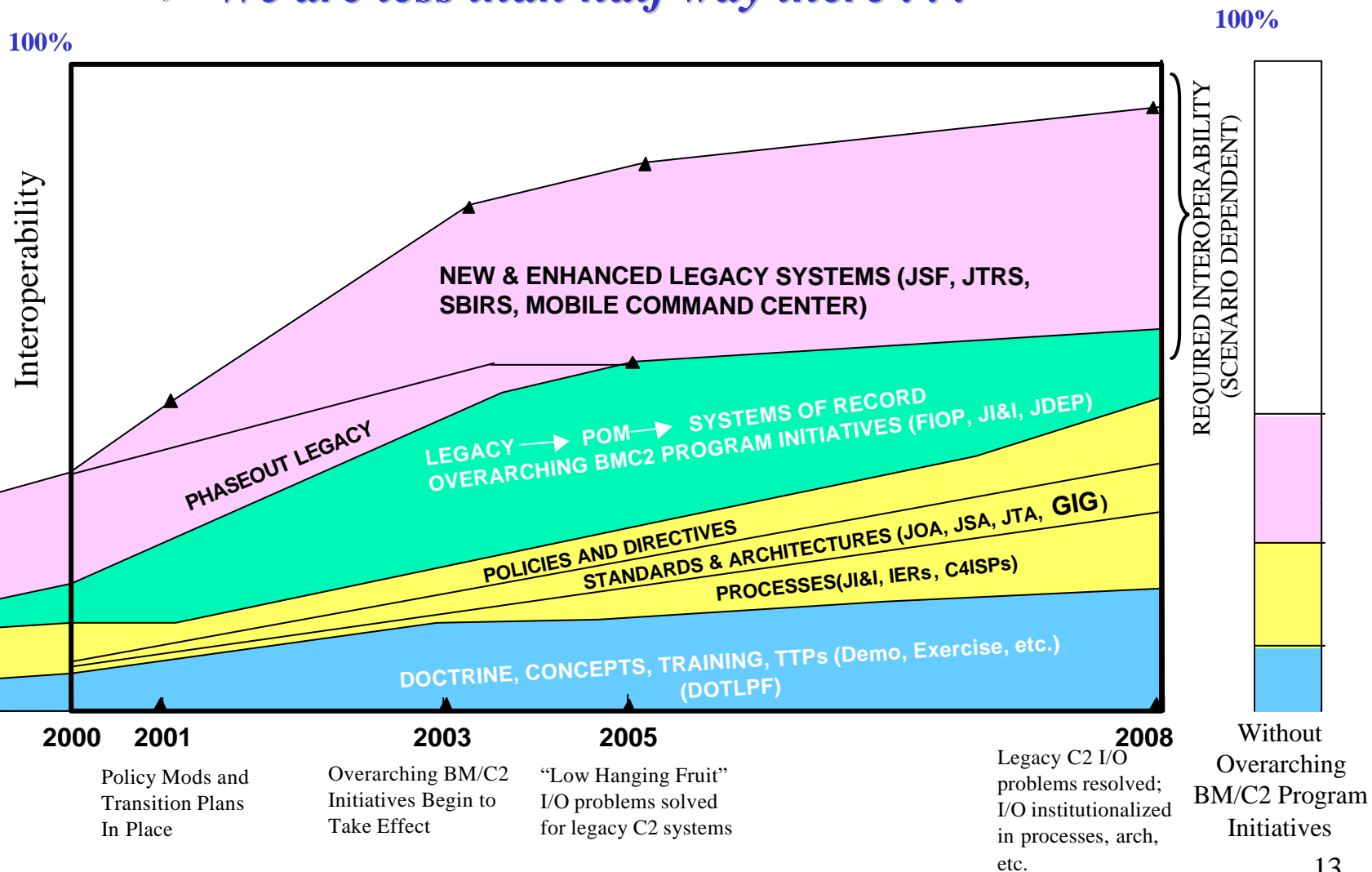
OVERALL STRATEGY
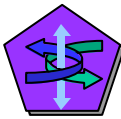
1. **Align Policy, Procedures, Processes and Architectures to fully address legacy systems in the context of Systems-of-Systems capability. Address implementation assurance and metrics.**

2. **Require that the architectures develop recommendations for synchronized systems' fixes, and provide for transition from the "As-Is" to the "To-Be" configurations.**

3. **Assure appropriate funding for overarching Battle Management/Command and Control (BM/C2) Interoperability Program Initiatives, specifically Family of Interoperable Operational Pictures (FIOP), Joint Integration and Interoperability (JI&I), and Joint Distributed Engineering Plant (JDEP), to transition from today's BM/C2 Legacy Systems to the future Network Centric vision.**

4. **Identify and prioritize Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) fixes to specific legacy systems by phases from the most critical to the entire C2 set.**
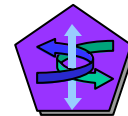
Four major components are needed to address legacy interoperability
# *We are less than half way there . . .*

100%

Interoperability

NEW & ENHANCED LEGACY SYSTEMS (JSF, JTRS, SBIRS, MOBILE COMMAND CENTER)

PHASEOUT LEGACY

LEGACY → POM → SYSTEMS OF RECORD
OVERARCHING BMC2 PROGRAM INITIATIVES (FIOP, JI&I, JDEP)

POLICIES AND DIRECTIVES
STANDARDS & ARCHITECTURES (JOA, JSA, JTA, **GIG**)
PROCESSES (JI&I, IERs, C4ISPs)

DOCTRINE, CONCEPTS, TRAINING, TTPs (Demo, Exercise, etc.)
(DOTLPF)

REQUIRED INTEROPERABILITY (SCENARIO DEPENDENT)

100%

Without Overarching BM/C2 Program Initiatives

2000	2001	2003	2005	2008
	Policy Mods and Transition Plans In Place	Overarching BM/C2 Initiatives Begin to Take Effect	"Low Hanging Fruit" I/O problems solved for legacy C2 systems	Legacy C2 I/O problems resolved; I/O institutionalized in processes, arch, etc.

Family of Interoperable Operating Pictures (FIOP)

(The "Glue")

FIOP is a key Department initiative aimed at effective joint and combined operations, focusing on BM/C^2 systems, to achieve coherence of the battlespace "pictures" from the Commander in Chief (CINC) to the soldier, sailor, marine and airman levels. The larger BM/C^2 systems for which FIOP will provide the appropriate interoperability "Glue", include: Single Integrated Air Picture (SIAP), the Global Command and Control System (GCCS) and the elements of the ground, sea and space "pictures".

TO SUCCEED, AND BE "COALITION FRIENDLY",

MAXIMUM USE OF COMMERCIAL TECHNOLOGY

FIOP Systems Engineer
(Service Lead)
USA/USMC/USN/USAF
Warfighters/Engineers
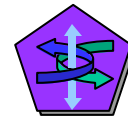
• **SENIOR BUT LEAN ORGANIZATION**

• **BULK OF NEW $$ MIPR'd TO SERVICE EFFORTS**

JFCOM JI&I —— Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities (DOTMLPF)

COP
(DISA Led)

CTP

SIAP*
(Navy Led)

SISP
(Air Force Led)

SIMP
(Navy Led)

SIGP
(Army/MC Led)

*SIAP $ PART OF QDR

Legend:

— — — — · **Establishment of SE Orgs will be via JROC (no preset timeframe)**
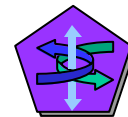
Joint Distributed Engineering Plant (JDEP)

SIGP Single Integrated Ground Picture
SIMP Single Integrated Maritime Picture
SISP Single Integrated Space Picture

SIAP Single Integrated Air Picture
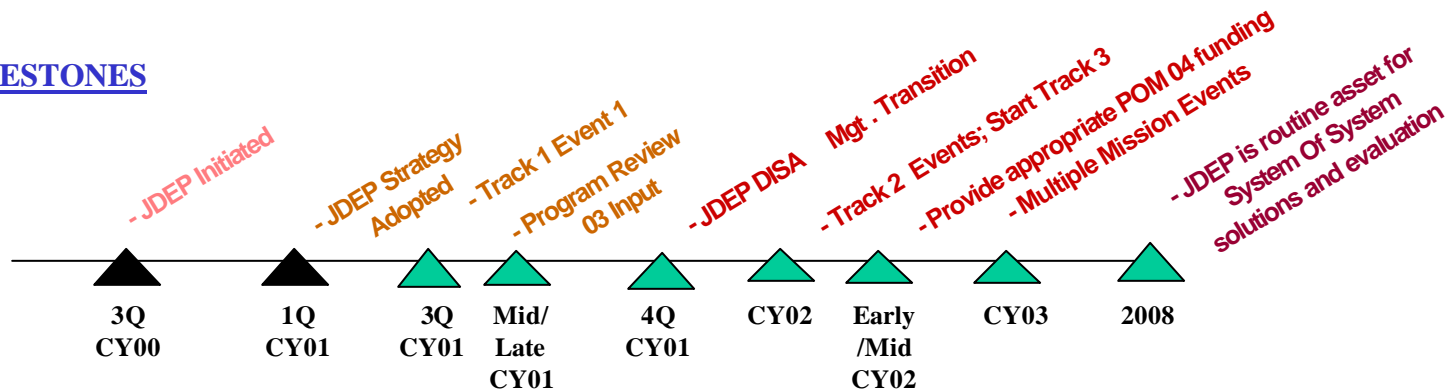**COP Common Operational Picture**
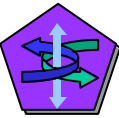**CTP Common Tactical Picture**

Joint Distributed Engineering Plant (JDEP)

➢ **The JDEP was established as a DoD-wide effort to link existing service and joint combat system engineering and test sites (including design activities, software support activities, test and evaluation facilities, training commands, and operational units). JDEP is designed to improve the interoperability of weapon systems and platforms through rigorous testing and evaluation in a replicated battlefield environment.**

➢ **JDEP Track 1 is a proof of concept Joint Theater Air Missile Defense (JTAMD), Track 2 is a JTAMD expansion, Track 3 extends JDEP to other mission areas. Accelerate Track 3.**

MILESTONES

- JDEP Initiated
- JDEP Strategy Adopted
- Track 1 Event 1
- Program Review 03 Input
- JDEP DISA Mgt . Transition
- Track 2 Events; Start Track 3
- Provide appropriate POM 04 funding
- Multiple Mission Events
- JDEP is routine asset for System Of System solutions and evaluation

| 3Q CY00 | 1Q CY01 | 3Q CY01 | Mid/ Late CY01 | 4Q CY01 | CY02 | Early /Mid CY02 | CY03 | 2008 |

Conclusion

- **Interoperability *is* Effective Joint and Combined Operations**

- **Need to build mission area system of systems capabilities - *Precision Engagement Key Pilot***

- ***FIOP* is Key to Implementing Decision Superiority**

- **Efforts must evolve in Cooperation with Allies and Coalition Partners, *especially for CID***

- **Must Harness and Adapt Commercial IT Technology and Processes**